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**REMARKS**

The Office action dated April 3, 2004 and the cited reference have been carefully considered.

**Status of the Claims**

Claims 1-73 are pending in the current prosecution. Claims 37-73 were earlier withdrawn from consideration pursuant to an election requirement. Therefore, claims 1-36 remain in the current prosecution.

Claim 26 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-24 and 31-36 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ebersole et al. (U.S. Patent 5,756,279; hereinafter "Ebersole"). Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebersole in view of Friedman et al. (U.S. Patent 5,547,877; hereinafter "Friedman"). The Applicants respectfully traverse these rejections for the reasons set forth below.

**Claim Rejection Under 35 U.S.C. § 112**

Claim 26 is rejected by the Examiner under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. Specifically, the Examiner pointed out that claim 26 lacked "express antecedent basis." In response, the Applicants have amended claim 26 to correct its dependency. Consequently, the lack of antecedent basis for "halogenated hydrocarbons" is now cured. Claim 26 now overcomes this rejection.

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**Claim Rejection Under 35 U.S.C. § 102(b)**

Claims 1-24 and 31-36 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ebersole. The Applicants respectfully traverse this rejection because Ebersole does not disclose expressly or inherently each and every element of claims 1-24 and 31-36.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a *single* prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

Ebersole discloses a method of detecting an analyte, the method uses either an acoustic or an optical detection system, but not both. Ebersole teaches the same, at column 3, lines 33-36, "The method comprises: a. contacting either an acoustic or optical detection system with an analyte to which an analyte responsive polymer contained in the detection system is responsive, . . . ." (Emphasis added.) Again the presence of only one detector system is disclosed in column 4, lines 63-69: "The invention describes two approaches to detecting changes that occur in a thin polymer film due to influence of an analyte, in which the polymer film is coated on either a piezoelectric acoustic wave device or on a device capable of measuring changes in refractive indices of the polymer film". (Emphasis added.) Therefore, Ebersole discloses only one detector and not a combination of two detectors.

Further, the optical detector in the Ebersole reference does not detect any property that is different from the property provided by the acoustic detector. Even then, the two detectors are not used at the same time. When an optical detector is used, it provides a mere confirmation for the acoustic detector, as is evident from Column 5 lines 46-50 ("The resulting changes in the light intensity are therefore analogous to the changes in the energy attenuation in the acoustical wave device.

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Th two devices are related conceptually in that both are sensitive to changes in the transmission of wave energy resulting from the influence of the analyte on the polymer film properties.”) (Emphasis added.) Therefore, the changes in the light intensity in the optical sensor is “analogous” to the changes in the energy attenuation in the acoustic wave device. Nowhere does Ebersole disclose that he uses the optical detector to measure property that is different from the acoustic wave sensor or that two complementary pieces of information are obtained. That Ebersole does not obtain two complementary pieces of information is evidenced at column 5, lines 55-58: “This is analogous to the changes in the resonant frequency detected in the acoustic wave device. Both devices therefore are similar conceptually when described according to principles of wave propagation.”(Emphasis added).

In contradistinction, each of claims 1-24 and 31-36 recites two separate detectors, wherein the first detector detects the changes in a property of the acoustic wave element relating to change in mass, viscoelastic or dielectric properties, and the second detector measures an optical property of the interaction product. Therefore, the second detector measures an additional property that complements the results of the first detector. Therefore, Ebersole does not disclose an opto-acoustic wave sensor comprising two detectors as recited in claims 1-24 and 31-36.

Since Ebersole does not disclose each and every element of claims 1-24 and 31-36, Ebersole does not anticipate these claims.

#### **Claim Rejection Under 35 U.S.C. § 103(a)**

Claims 25-30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ebersole in view of Friedman. The applicants respectfully traverse the rejection because a combination of Ebersole and Friedman does not teach or suggest all of the elements of each of claims 25 – 30.

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"[T]he legal conclusion of obviousness [under 35 U.S.C. § 103(a)] requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used them to make the new [invention]." *C.R. Bard, Inc. v. M3 Systems, Inc.*, 48 U.S.P.Q.2d 1225, 1231 (Fed. Cir. 1998). Thus, in order for the prior art to render the claimed invention obvious, all of the elements thereof must be taught or suggested in the prior art. "What must be found obvious to defeat the patentability of the claimed invention is the claimed combination." *The Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 U.S.P.Q.2d 1923, 1927 (Fed. Cir. 1990).

Ebersole merely teaches a system that includes either an acoustic or an optical detection system. Ebersole does not teach or suggest a combination of an acoustic wave sensor and an optical detector. For example, Ebersole teaches at column 5, lines 46-50: "The resulting changes in the light intensity are therefore analogous to the changes in the energy attenuation in the acoustical wave device. The two devices are related conceptually in that both are sensitive to changes in the transmission of wave energy resulting from the influence of the analyte on the polymer film properties" wherein the changes in the light intensity in the optical sensor is "analogous" to the changes in the energy attenuation in the acoustic wave device. Friedman merely teaches the detection of halogenated hydrocarbons in aqueous samples by first concentrating the halogenated hydrocarbons and then measuring absorption spectra of the products of these halogenated hydrocarbons in the Fujiwara reaction, in aliquots of a solution. See; e.g., column 3, lines 15-35; and column 4, lines 1-12. Friedman does not teach or suggest that the contaminants (e.g., halogenated hydrocarbons) interact with a reagent in a coating, as is recited in claims 25-30. Therefore, adding Friedman to Ebersole still does not teach or suggest all of the limitations of each of claims 25-30.

In contradistinction, each of claims 25-30 of the instant invention recites two detectors wherein the first detector measures the changes in the property of the acoustic wave element relating to change in mass, viscoelastic, or dielectric properties, and the second detector measures an optical property of an interaction

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product of the chemical species in the coating. The acoustic wave element provides a quantitation of the chemical species, and the optical detector provides information about its identity. A combination of Ebersole and Friedman neither teaches nor suggests a device having all of the elements of each of claims 25-30. Therefore, claims 25-30 are patentable under 35 U.S.C. § 103(a) over Ebersole in view of Friedman.

If the Applicants can be of any assistance in advancing this application to allowance, the Examiner is invited to call the Applicants' attorney whose telephone number is indicated below.

In view of the above, it is submitted that the claims are patentable and in condition for allowance. Reconsideration of the rejection is requested. Allowance of claims at an early date is solicited.

Respectfully submitted,



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